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| 10/083,305 | 02/26/2002 | Dan V. Gorcea | 7000-139 | 5521 |
| 27820 | 7590 | 05/16/2005 | EXAMINER | |
| WITHROW & TERRANOVA, P.L.L.C. | | | EJAZ, NAHEED | |
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DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,305

Applicant(s)

GORCEA ET AL.

Examiner

Ejaz Naheed

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2002.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-5, 7-10 and 12-27 is/are rejected.
7) ☒ Claim(s) 6 and 11 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 6 and 11 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claims. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.
2. Refer to claim 6, it limits the claim 1 by 'comprising a receive port' while applicant already discloses in claim 1 that device has 'a receive port' (line 6).
3. Refer to claim 11, it limits the claim 10 by comprising the coils' windings ratio to be '1:1: α ' while claim 9 already limits the winding ratio to be the same.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, the ' α ' renders the claim 12 indefinite because the claim includes values for ' α ' to be 'approximately 2 and 3' not actually disclosed the exact value thereby rendering the scope of the claim 12 unascertainable (See MPEP § 2173.05(d)).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,2,3,4,7,8,13,14,16, and 18 are rejected under 35 U.S.C 103(a) as being unpatentable over Gardner et al. (U.S. 6,580,751), hereafter referred to as Gardner, in view of Rhodes (5,301,208).

Referring to claim 1, "a first transformer comprising a first coil, a second coil and a third coil", Gardner discloses in figure 11 a circuit comprises a transformer (element 70 and figure 11) considered to be the first transformer coupled with modem (column 13, lines 4-8). Windings 74 and 72 (figure 11) are considered to be the 1st and 2nd coils of the first transformer respectively and the left hand side windings of 81A (figure 11) to be the 3rd coil of the first transformer. "a second transformer comprising a fourth coil and a fifth coil", Transformer 80 is considered to be the second transformer (figure 11) and (column 13, lines 17-19). The left most windings of 70B and 81B of figure 11 are considered to be the 4th and 5th coils of the second transformer respectively. "said fifth coil and said third coil comprising a receive path operatively coupled to a receive port", The third and fifth coils are in the receiving path of the transformers which form the receiving port (see figure 11), "said fourth coil and said second coil comprising a transmit path operatively coupled to a transmit port" the 2nd and 4th coils are in the transmitting path (see figure 11).

However, Gardner does not disclose active impedances and their losses and gain "said transmit path further comprising an active impedance element introducing a loss onto said receive path; and said third and fifth coils introducing a gain into said receive path", While Rhodes teaches about impedances and losses (column 5, lines 44-68). Furthermore, by changing the number of windings in each coil, transformers can be manufactured to have different impedance ratios. The ratio between the input and output impedances provides a gain or loss of signal level as the signal passes through the transformer.

It would have been obvious to a person of ordinary skill in the art to implement the teaching of Rhodes into Gardner as to avoid impedance discontinuities and reduce insertion losses in the transformer as taught by Rhodes (see column 5, lines 65-68).

Refer to claim 2, "The modem of claim 1, wherein said modem comprises an XDSL modem", Gardner discloses ADSL modem (column 8, lines 4-14 and figure 11).

As to claim 3, "wherein said transmit port comprises a differential transmit port", Gardner discloses in his teachings that the transmit port is differential transmit port (see figure 11).

As to claim 4, "wherein said gain offsets said loss", it is also rejected under the same rationale as mentioned in claim 1 above because it would have been obvious to a person of ordinary skill in the art to see that the gain compensates the losses in the circuit invented by applicant.

With respect to claim 7, "wherein said receive port comprises a differential port",

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Gardner proclaims in his teachings that the receiving ports include a differential port (see figure 11 and column 13, lines 10-13).

Refer to claim 8, "wherein said transmit path further comprises a power amplifier", Gardner discloses a transmitter (TX) which comprises a power amplifier (see figure 11).

Claim 13 is also rejected under the same rational as mention in claim 1 rejection above.

Claim 14 is also rejected under the same rational as mention in claim 1 rejection above.

Claim 16 is also rejected under the same rational as mention in claim 1 rejection above.

Claim 18 is also rejected under the same rational as mention in claim 1 rejection above.

8. Claim 5,15 and 17 are rejected under 35 U.S.C 103(a) as being unpatentable over Gardner in view of well known transformer equations.

Refer to claim 5, Gardner teaches all the features of the claimed invention except, "wherein said gain is created in said third coil and comprising more windings than said first and second coils and said fifth coil comprising more windings than said fourth coil", the gain into the receiving paths being introduced by third and fifth coils.

However, one of the ordinary skill in the art clearly recognizes from the well known transformer equations that by selecting different turn ratios in the primary and

secondary windings of transformers, one can increase the voltage gain of one side of transformer with regard to the other side (e.g. secondary side over primary side).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Gardner's teaching and use higher turn ratios for coils three and five so as to increase the voltage level at the receiver side so as to enhance the detection capability of the receiver.

Claim 15 is rejected under the same rational as mention in claim 5 rejection above.

Claim 17 is rejected under the same rational as mention in claim 5 rejection above.

9. Claim 9,10 and 25 are rejected under 35 U.S.C 103(a) as being unpatentable over Gardner et al. (U.S. 6,580,751), hereafter referred to as Gardner, in view of Beurrier (3,789,315).

Regarding to claim 9, Gardner teaches claim 1 but he fails to disclose, "wherein said first, second and third coils comprise windings in a ratio of 1: 1: α ", the turn ratio of the transformers.

However attention is directed to the Beurrier reference which discloses the turn ratio of the windings (column 1, lines 35-41).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to implement the teaching of Beurrier into Gardner in order to acquire or gain coupler windings should be connected in particular manner in terms of their ratios as taught by Beurrier (see column 2, lines 1-5).

As to claim 10, Gardner teaches claim 1 but fails to disclose "wherein said fourth and fifth coils comprise windings in a ratio of 1: α ", the turn ratio of the transformers.

However, Beurrier teaches about winding ratio of transformers (column 1, lines 51-53). Moreover, selection of number of windings is a matter of design by selecting different turn ratios in the primary and secondary windings of transformers, one can increase the voltage gain of one side of transformer with regard to the other side (e.g. secondary side over primary side) as discussed in claims 5, 15 and 17 rejection.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to implement the teaching of Beurrier to Gardner in order to acquire or gain coupler windings should be connected in particular manner in terms of their ratios as taught by Beurrier (see column 2, lines 1-5).

Claim 25 is rejected under the same rationale as mention in claim 9 rejection above.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claim 19, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner et al. (US 6,580,751), hereafter referred to as Gardner, in view of Beurrier (3,789,315).

Referring to claim 19, "A transformer positioned in a modem", Gardner discloses in figure 11 a circuit comprises a transformer 70 coupled to the modem (column 13, lines 4-8). "a first coil comprising a set of first windings; a second coil comprising a set of second windings; a third coil comprising a set of third windings", Windings 74, 72, are considered to be the 1st and 2nd windings of the first and second coils of the transformer respectively while the left hand side windings of 81A are considered to be the 3rd windings of the third coil (see figure 11). Moreover, "third coil is positioned in a receive path of the modem", the third coil forms the receiving path of the modem (see figure 11) and (column 13, lines 17-15). Gardner fails to disclose the winding ratio

However, "first, second, and third windings having a ratio of 1:1: α ", Beurrier teaches about winding ratio of transformers (column 1, lines 35-41).

It would have been obvious to a person of ordinary skill in the art to incorporate different ratios of windings disclosed by Beurrier in a transformer disclosed by Gardner in order to acquire coupler, windings should be connected in a particular manner in terms of their coil ratios as taught by Beurrier (see column 2, lines 1-5).

Refer to claim 20, "wherein said second coil is associated with a transmit path of the modem", Gardner teaches claim 19 and discloses windings 72, which is considered here to be the second coil, associated with the transmit path (see figure 11).

Refer to claim 21, "wherein said first coil is associated with a transmission line connected to the modem", Gardner teaches claim 19 and proclaims windings 74, which is considered here to be the first coil, associated with a transmission line and modem (see figure 11).

12. Claim 22, 23, 24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner as applied to claim 1 above, and further in view of Rhodes (5,301,208).

Refer to claim 22, Gardner circuit discloses two transformers, power amplifiers, modem, and transmit and receiving ports as described in claims 1 to 8 rejections above but he fails to disclose impedances.

However, "coupling to a network having a load impedance with a value, Z_L ,... a transmit power amplifier having an output coupled to the second coil through a first impedance and to the fourth coil through a second impedance; and a third impedance coupled in parallel with the fourth coil", attention is required towards Rhodes reference whose teaching discloses impedances (column 5, lines 44-68), and transceiver (column 1, lines 58-61).

It would have been obvious to a person of ordinary skill in the art to implement the teaching of Rhodes into Gardner in order to avoid impedance discontinuities and reduce insertion losses in the transformer as taught by Rhodes (see column 5, lines 65-68).

As to claim 23, Gardner teaches all the features in claim 22 but he fails to disclose active impedance.

However, "wherein the transmit power amplifier has an active impedance", Rhodes teaches about active impedance as mentioned above in claim 22 rejection. Furthermore, in order to protect the signal from distortion to the load one has to choose the characteristic impedance that would correctly match at the driver and the receiver.

Therefore, it would have been obvious to a person of ordinary skill in the art to implement the teaching of Rhodes into Gardner in order to not to have signal reflection and have a stable signal it is necessary to avoid impedance discontinuity by Rhodes (column 5, lines 29-43 and column 7, lines 43-46).

As to claim 24, "each of the third and fifth coils have first ends, which are coupled together, and second ends, which form the receive port", Gardner discloses a circuit that forms the receiving port by using third and fifth coils as mentioned above in claim 1 rejection.

Claim 27 is rejected under the same rational as mention in claim 23 above.

13. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner as applied to claim 1 above, and further in view of Rhodes (5,301,208).

Refer to claim 26, Gardner teaches about two transformers, modem, transmitting and receiving ports, and two power amplifiers as described in claims 1 to 8 rejections but fails to include active impedance.

However, "power amplifier is coupled to the first end of the second coil through the first impedance and coupled to the first end of the fourth coil through the second impedance", Rhodes teaches about impedance (column 5, lines 44-68).

It would have been obvious to a person of ordinary skill in the art to implement the teaching of Rhodes into Gardner in order to avoid impedance discontinuities and reduce insertion losses in the transformer as taught by Rhodes (see column 5, lines 65-68).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Rakshani et al. reference, U.S. 2004/0064275 published on 04/01/2004 "System And Method For Detecting A Device Requiring Power".

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Naheed Ejaz whose telephone number is 571-272-5947. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

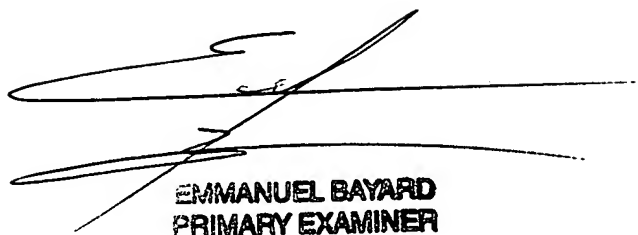
17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Naheed Ejaz

Examiner

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EMMANUEL BAYARD
PRIMARY EXAMINER